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PACKAGED MICROELECTRONIC DEVICES WITH INTERCONNECTING UNITS
AND METHOD FOR MANUFACTURING AND USING THE INTERCONNECTING
UNITS

ABSTRACT

Methods and apparatuses for encapsulating a microelectronic die or other components in the fabrication of packaged microelectronic devices. In one aspect of the invention, a packaged microelectronic device assembly includes a microelectronic die, a substrate attached to the die, a protective casing covering a portion of the substrate, and a barrier projecting away from the surface of the substrate. The microelectronic die can have an integrated circuit and a plurality of bond-pads operatively coupled to the integrated circuit. The substrate can have a cap-zone defined by an area that is to be covered by the protective casing, a plurality of contact elements arranged in the cap-zone, a plurality of ball-pads arranged in a ball-pad array outside of the cap-zone, and a plurality of conductive lines coupling the contact elements to the ball-pads. The contact elements are electrically coupled to corresponding bond-pads on the microelectronic die, and the protective casing covers the cap-zone. The barrier on the surface of the substrate is configured so that at least a portion of the barrier is outside of the cap-zone and adjacent to at least a portion of the molded section. The barrier is a seal that inhibits the thermosetting material of the protective casing from covering a portion of the substrate outside of the cap-zone. As such, the barrier prevents thermosetting material from leaking between the substrate and a mold outside of the cap-zone during a molding process.